Chapter 2.5 Weber River Watershed Management Unit Assessment

2.5.1 Introduction

The Weber River rises in Summit County near Reids Peak (11,708 ft), then flows west to Oakley, Utah; then turns and flows in a north westerly direction to the Great Salt Lake (4,200 ft). The Weber River is approximately 125 miles long; one-half of which lies in Summit County, 25 miles flow in Morgan County and 30 miles in Weber County. The Ogden River, the major tributary to the Weber River, lies within Weber County and enters the Weber River about 12 miles upstream from its mouth. The other major tributaries to the Weber River are East Canyon Creek, Lost Creek, Chalk Creek, and Beaver Creek. Two smaller tributaries that can affect the water quality of the Weber River are Echo Creek and Silver Creek.

Table 2.5-1 U.S.G.S. Hydrological Units in the Weber River Watershed Management Unit

Hydrological Unit Code	Hydrological Unit Name
16020101	Upper Weber
16020102	Lower Weber

2.5.2 Water Quality Assessment Results

Data collected from January 1, 2002 through December 31, 2006 were used to assess the rivers and streams in this watershed management unit. Data included the intensive survey data and data collected at long-term and point source sites. The designated beneficial use classes assigned to rivers and streams are mapped in Figure 2.5-2. Water chemistry and field data were compared against state standards to determine beneficial use support. Benthic macroinvertebrate data were used to assess Figure 2.5-1.beneficial use support under the narrative standard (Chapter 2.15). The beneficial uses assigned to rivers and streams are mapped in Figure 2.5-3.

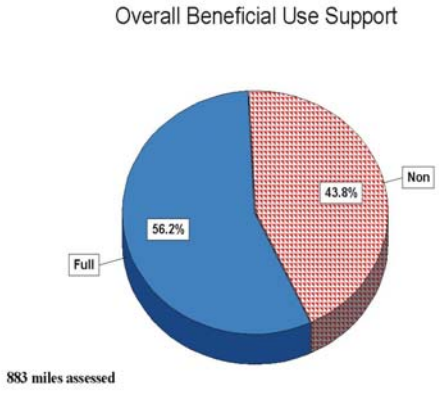


Figure 2.5-1 Overall Beneficial Use Support

2.5.2.1 Overall Beneficial Use Support

An assessment of beneficial use support was made for 882.6 miles. Based upon at least one beneficial use being assessed, 496.10 miles (56.2%) were assessed fully supporting and 386.5 miles (43.8%) as not supporting (Figure 2.5-1).

2.5.1.2 Assessment by Categories

Table 2.5-2 is a list of streams miles assigned to the various beneficial use categories during the assessment. Figure 2.5-3 is a map of the beneficial use support by categories.

Table 2.5-2 Stream Miles by Assessment Category – Weber River Watershed Management Unit

Category	Category Definition	Stream Miles
1	All beneficial uses fully supported.	
2	Beneficial uses assessed are fully supported.	498.6
3A	No data or insufficient data to make an assessment.	165.5
3B	Lakes that are not supported for one cycle only.	
3C	Insufficient data to assess but an assessment plan is in place.	
4A	Approved TMDL	234.5
4B	Pollution control requirements are expected to result in full beneficial use support in near future.	
4C	Impaired by pollution, no TMDL required.	137.0
5	Impaired by pollutant, TMDL required.	173.4

2.5.1.3 Individual Beneficial Use Support

Table 2.5-3 lists the beneficial use support by individual beneficial use classes. For the aquatic life beneficial use, 561.63 stream miles (59.1%) are supporting their aquatic life beneficial uses. There are 389.2 miles (40.9%) not supporting aquatic life beneficial uses. Of the 840.35 miles assessed for agricultural use, all are fully supporting. Of the miles assessed as a source of drinking water, 7.2.09 miles (97.0%) are fully supported and 21.4 miles (3.0%) as not supporting. Silver Creek is the stream that does not meet drinking water standards.

Table 2.5-3 Individual Use Support Summary – Weber River Watershed Management Unit

	Size	Size Fully	Size Not	

	Assessed	Supporting	Supporting	Totals
Use				
Drinking Water	723.46	702.09	21.37	723.46
Fish Consumption				
Swimming	586.51	561.63	24.88	586.51
Secondary Contact	586.51	561.63	24.88	586.51
Aquatic Life	950.78	561.63	389.15	950.78
Agricultural	840.35	840.35		840.35
Drinking Water		97.0%	3.0%	100.0%
Fish Consumption				
Swimming		95.8%	4.2%	100.0%
Secondary Contact		95.8%	4.2%	100.0%
Aquatic Life		59.1%	40.9%	100.0%

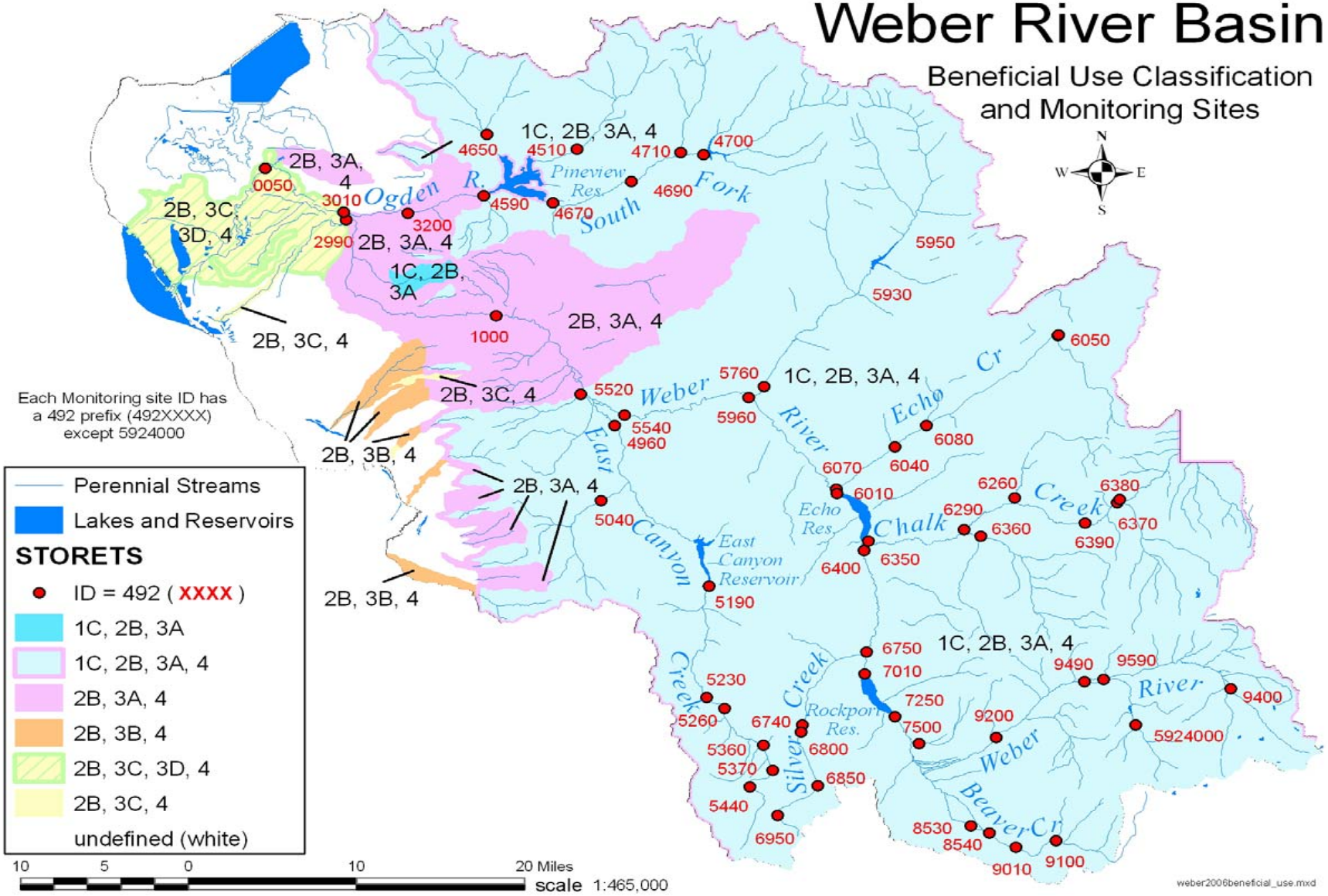


Figure 2.5-2 Weber River Watershed Management Unit beneficial use classifications

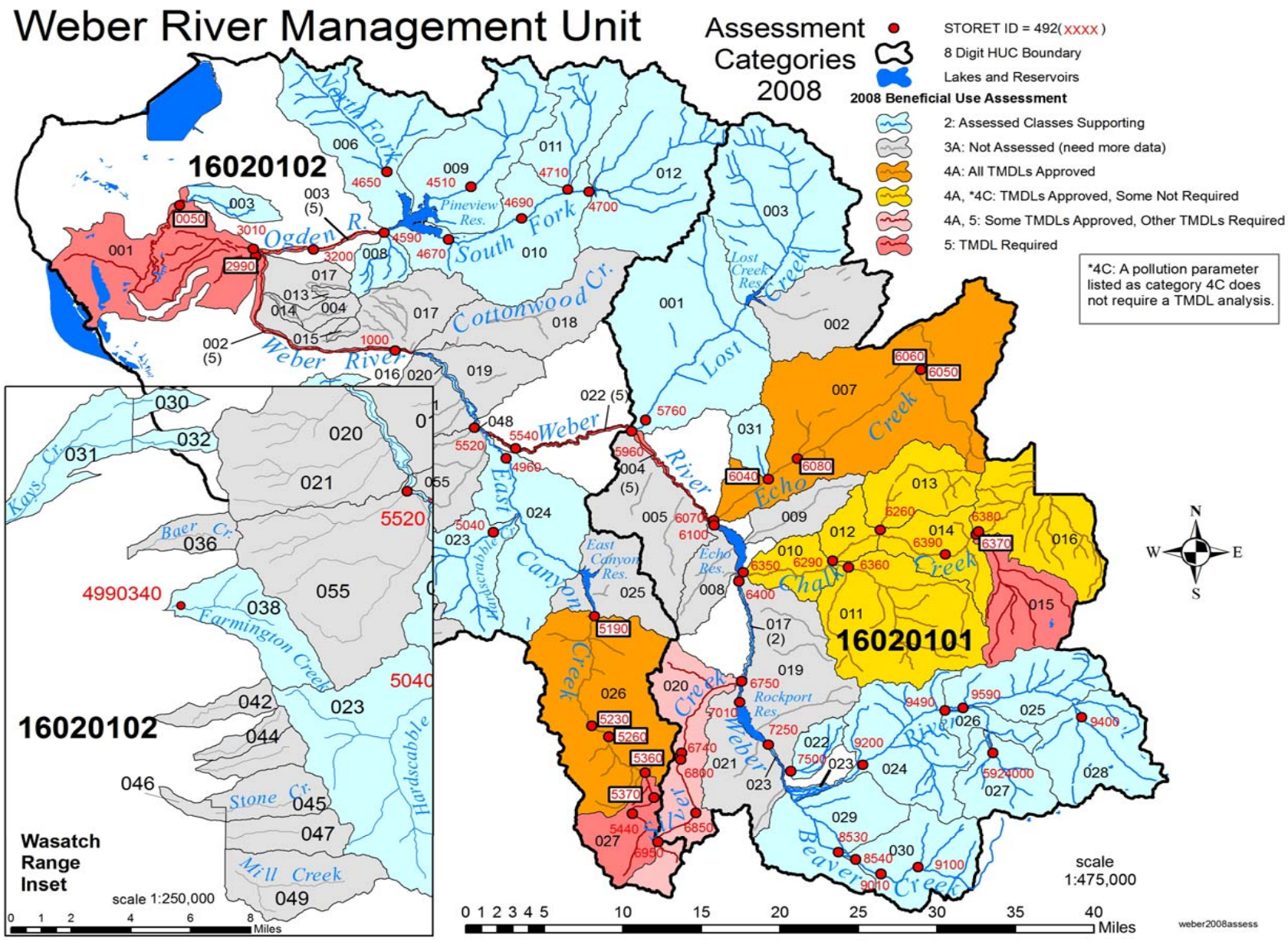


Figure 2.5-3 Weber River Watershed Management Unit assessment by categories

2.5.1.4 Total Waters Impaired by Various Causes

Table 2.5-4 is a list of stream miles affected by the various causes of pollution. The causes of water quality impairment are nutrients (total phosphorus) sediment (siltation/sediment), habitat alterations such as loss of riparian habitat and in-stream structure and function, dissolved oxygen, flow alterations and metals. The percent of stream miles impaired by these causes is illustrated in Figure 2.5-4. Metals are the cause of impairment in Silver Creek. Historical mining practices and tailings are the source of the contamination. The relative percent impact by causes are illustrated in Figure 2.5-5.

2.5.1.5 Total Waters Impaired by Various Sources

Table 2.5-5 contains a list sources that caused stream impairments. The sources of impairment are agricultural activities, hydromodification, habitat modification, resource extraction, natural sources, unknown, and urban runoff. The percent of stream miles impaired by these sources are illustrated in Figure 2.5-6. The relative percent impact by sources is illustrated in Figure 2.5-7.

2.5.1.6 Impaired Assessment Units

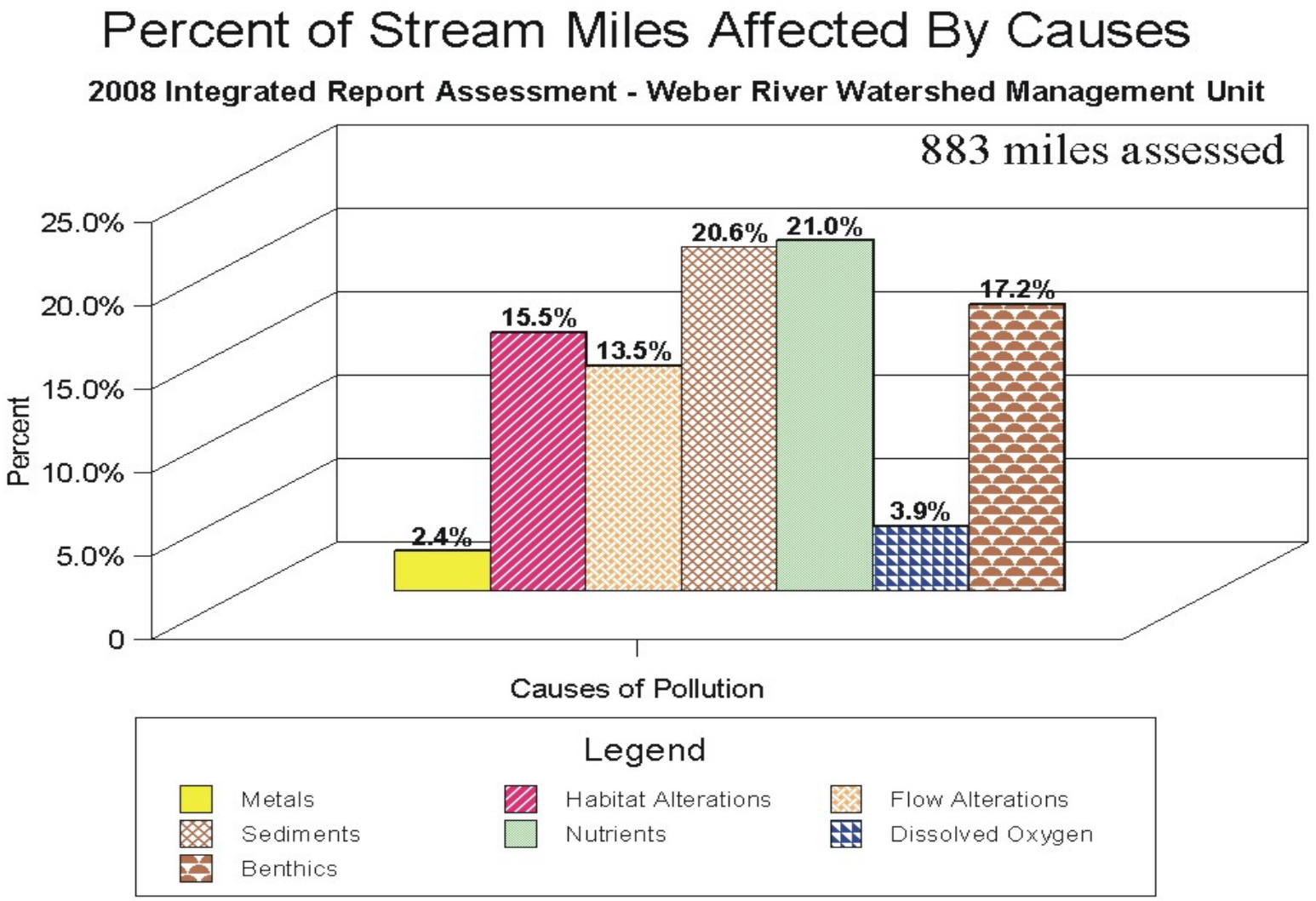
Table 2.5-6 is a list of the impaired waters in the Weber River Watershed Management Unit

Table 2.5-4 Total Waters Impaired by Various Cause Categories - Weber Watershed Management Unit

Cause Category	Stream Miles
Benthic macroinvertebrate assessment impairment	141.43
E. coli	
Flow Alteration	
Metals	21.37
Organic Enrichment/Low DO	34.66
Other Habitat Alterations	136.97
pH	
Radiation	
Salinity/TDS/Chlorides	
Siltation	181.12
Temperature	
Total Phosphorus	182.2
Unionized Ammonia	

Table 2.5-5 Total Waters Impaired by Various Source Categories – Weber Watershed Management Unit

Cause Category	Stream Miles
Agriculture	226.35
Aquaculture	
Construction	34.66
Drought	
Habitat Modification (other than Hydromodification)	136.97
Hydromodification	147.54
Industrial Point Sources	
Land Development	34.66
Municipal Point Sources	34.66
Natural Sources	129.3
Resource Extraction	158.34
Septic	
Source Unknown	141.43
Sources outside State Jurisdiction or Borders	
Urban Runoff/Storm Sewers	34.66



Percent impact by causes on stream water quality – Weber River Watershed Management

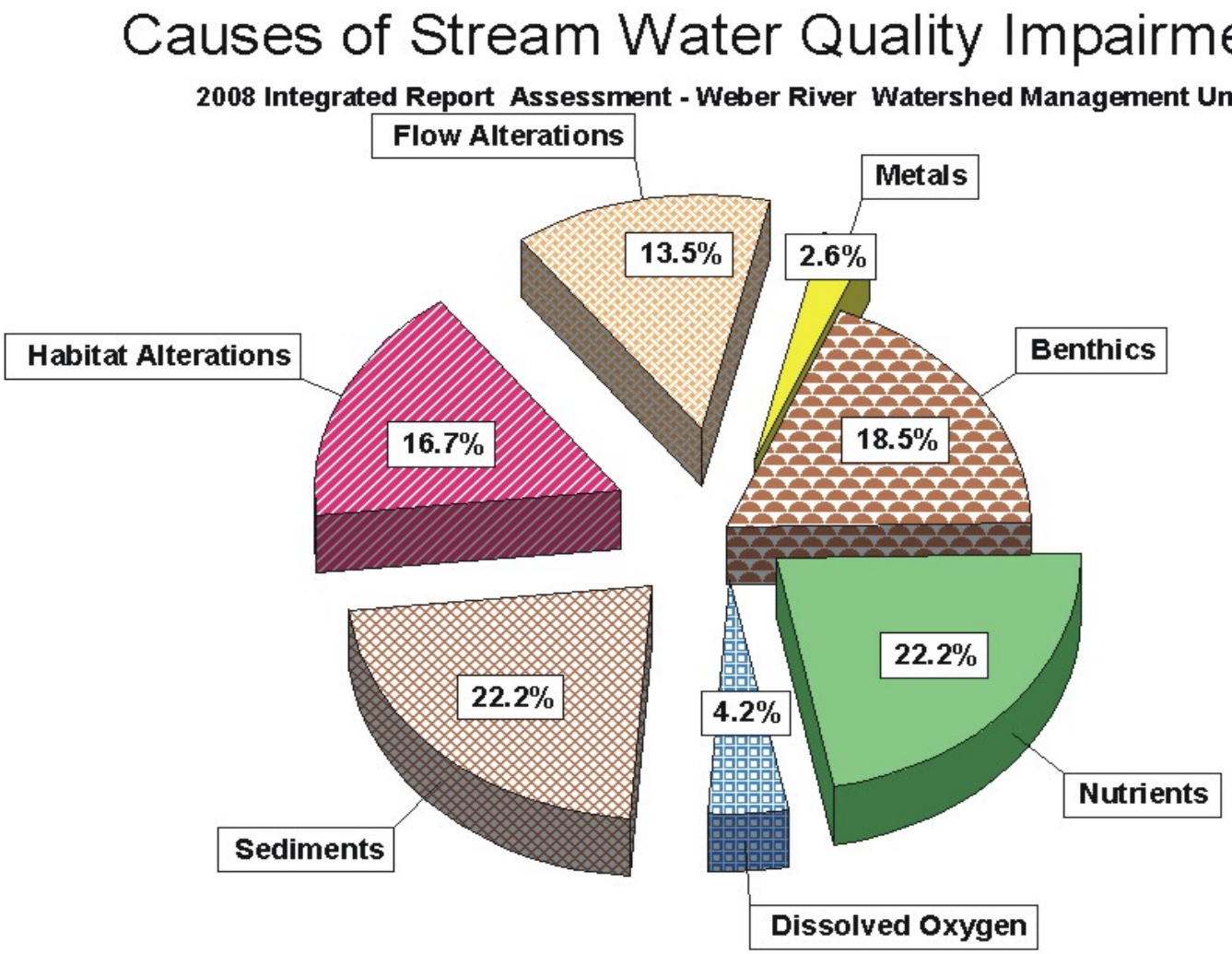


Figure 2.5-4 Relative percent contribution of causes on stream water quality – Weber River Watershed Management Unit

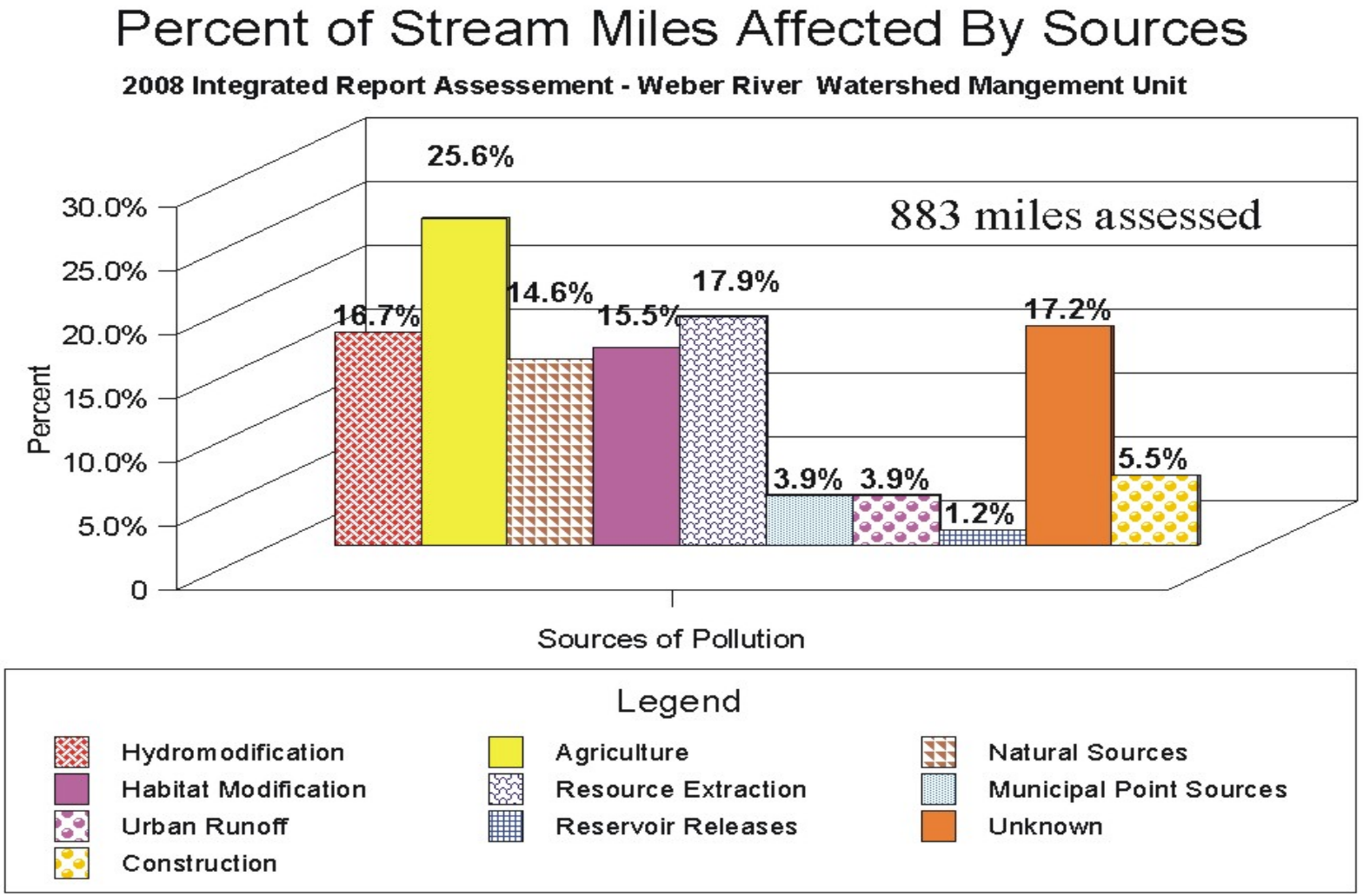


Figure 2.5-5 Percent of assessed stream miles impacted by various sources – Weber River Watershed Management Unit.

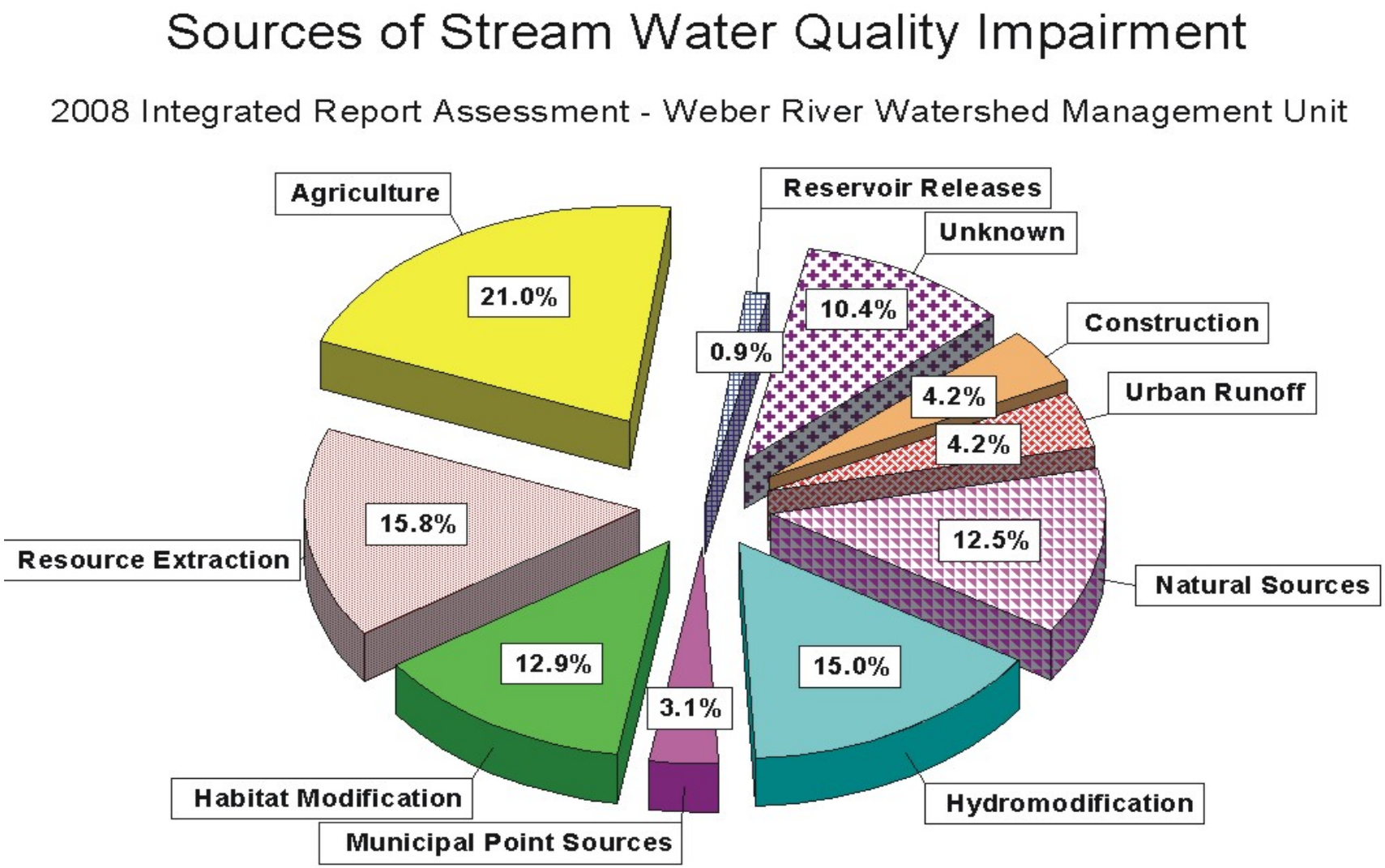


Figure 2.5-6 Relative percent impact by causes on water quality – Weber River Watershed Management Unit

Table 2.5-6 Impaired Waters Located in the Weber River Watershed Management Unit

Water Management Unit	Assessment Unit ID	Assessment Unit Name	Assessment Unit Description	Beneficial Use Class Impaired	Beneficial Use Support	Support Category	Pollutant Or Pollution	Stream Miles
Weber River	UT16020101-004	Weber River-7	Weber River segment between confluence of Lost Creek and Echo Reservoir	3A	NS	5	Total Phosphorus	10.57
Weber River	UT16020101-015	East Fork Chalk Creek	East Fork Chalk Creek and tributaries from confluence with Chalk Creek to headwaters	3A	NS	5	Benthic macroinvertebrate assessment impairment	28.42
Weber River	UT16020101-020	Silver Creek	Silver Creek and tributaries from confluence with Weber River to headwaters	1C	NS	5	Arsenic	21.37
Weber River	UT16020102-001	Weber River-1	Weber River and tributaries from Great Salt Lake to Slaterville Diversion	3C	NS	5	Benthic macroinvertebrate assessment impairment	60.15
Weber River	UT16020102-002	Weber River-3	Weber River from Ogden River confluence to Cottonwood Creek confluence	3A	NS	5	Benthic macroinvertebrate assessment impairment	17.86
Weber River	UT16020102-005	Ogden River-1	Ogden River from confluence with Weber River to Pineview Reservoir	3A	NS	5	Benthic macroinvertebrate assessment impairment	9.66
Weber River	UT16020102-022	Weber River-6	Weber River between East Canyon Creek confluence and Lost Creek confluence	3A	NS	5	Benthic macroinvertebrate assessment impairment	12.37
Weber River	UT16020102-027	Kimball Creek	Kimball Creek and tributaries from East Canyon Creek confluence to headwaters, including McLeod Creek	3A	NS	5	Benthic macroinvertebrate assessment impairment	12.97